M3 BLACK

User Manual

Version 2.1 ©2015

M3 MOBILE

Using this manual

Thank you for purchasing M3 BLACK. This device will provide you with high quality data capture and mobile communication at industrial level of ruggedness.

This user manual has been specially designed to guide you through the basic functions and features of M3 BLACK.

Read me first

- Please read all safety precautions and this manual carefully before using your device to ensure safe and proper use.
- This user manual is written based on current state of the device and the detail of this manual are subject to change without prior notice.
- The description on this manual is based on the default setting of the device.
- Images and screenshots are taken using current version of software.
- This user manual assumes the device is fully optioned. For the available options with your device, please contact your local distributor or visit our homepage at http://www.m3mobile.net
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- This user manual may contain technical and/or editing error.

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Instructional icons

Before you start, familiarize yourself with the below icons to help with the manual.

	Warning – *situations that could cause injury to yourself or others.*
	Caution – *situations that could cause damage to your device or other equipment.*
	Note – *useful tips or additional information.*

Safety precaution

- Do not use PDA while driving.
  - ✓ It can expose to serious accident.
  - ✓ Using PDA while driving may defend against law.

- Do not touch charging plug with wet hand.
  - ✓ It may cause electric shock.

- Be aware of handling battery.
  - ✓ Do not apply big impact or drill into it.
  - ✓ Avoid damping the battery or submerge into water.
  - ✓ Avoid metallic contact with the battery.

- Do not expose PDA, battery or charger to excessive heat.
  - ✓ It may cause PDA's corruption or explosion.
  - ✓ If PDA has been left in a car, as temperature increases it may cause explosion.

- Do not use PDA in event of thunder and lightning.
  - ✓ Using PDA in lightning condition can cause electric shock.

- Avoid use of PDA in restricted area.
  - ✓ It can cause radio interference.
  - ✓ Avoid use of PDA within aircraft. It can interfere with the navigational system of the vessel.
  - ✓ Avoid use of PDA within hospital. It can interfere with the medical equipment.

- Turn off PDA where explosion risk area.
  - ✓ Please obey rules of explosion risk area.
  - ✓ It is safe to turn off PDA in patrol station.

- Be aware of using head set.
  - ✓ Continuous use of head set with high volume can damage hearing ability.
  - ✓ Using headset while walking or driving, it can decrease attentiveness and cause accident.

Revision History

Version 2.0 Release date: September, 2014

- New form applied.

Version 1.0 Release date: November, 2013

- Initial release.

Contents

1. Getting Started 7

1.1 Product package 7

1.1.1 Device and Peripherals 7

1.2 Battery 8

1.2.1 How to Use 8

1.2.2 How to charge 9

1.3 Power on & off 12

1.3.1 Power on 12

1.3.2 Power off 12

1.3.3 Sleep mode 12

1.4 Memory card 13

1.4.1 Inserting memory card 13

1.4.2 Data check 13

1.5 SIM card 14

1.5.1 Inserting SIM card 14

2. Basic usage 15

2.1 Features 15

2.2 Keypad 16

2.2.1 Buttons 16

2.3 Screen 18

2.3.1 Status bar 18

2.3.2 Today screen 19

2.3.3 Task bar 19

2.4 Data input 19

2.4.1 Stylus pen 19

2.4.2 Keyboard 20

2.5 Reset 22

2.5.1 Soft reset 22

2.5.2 Clean boot 22

2.6 Sync with PC 23

2.6.1 How to sync 23

3. Application usage 25
3.1 Bluetooth 25
3.1.1 Bluetooth configuration 25
3.1.2 Getting connected 25
3.2 Camera 27
3.2.1 Camera basics 27
3.3 GPS 28
3.3.1 GPS basics 28
3.4 Phone 29
3.4.1 Phone basics 29
3.5 Scanner 30
3.5.1 Scanner basics 30
3.5.2 Scanner use 30
3.6 Wireless LAN 32
3.6.1 WLAN configuration 32
4. Advanced usage 34
4.1 Software development kit (SDK) 34
4.1.1 SDK Package 34
4.1.2 OS Update 34
4.1.3 Key customization 36
5. Etc 38
5.1 Specification 38
5.2 Services 39
5.2.1 Contact details 39

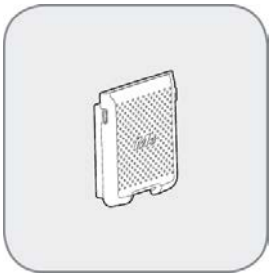
1. Getting Started

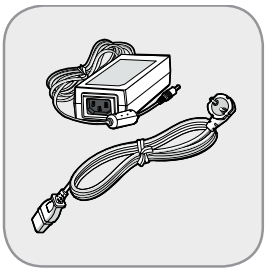
1.1 Product package

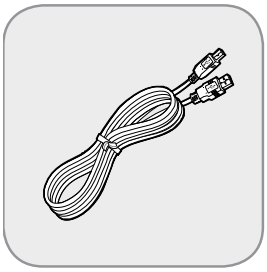
1.1.1 Device and Peripherals

Check **M3 BLACK** package contains below items:

<M3 BLACK >


<Battery>


<Adapter>


<USB cable>

<Stylus pen>

<Cradle>

<Quick Manual>

If there is any missing part or damaged item, please contact your supplier immediately.

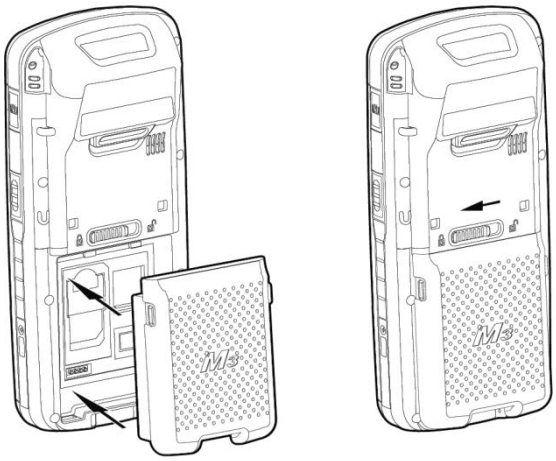
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

1.2 Battery

1.2.1 How to Use

Inserting battery

- Attach the battery as indicated on below image.
- Then, slide the battery lock to secure the battery.

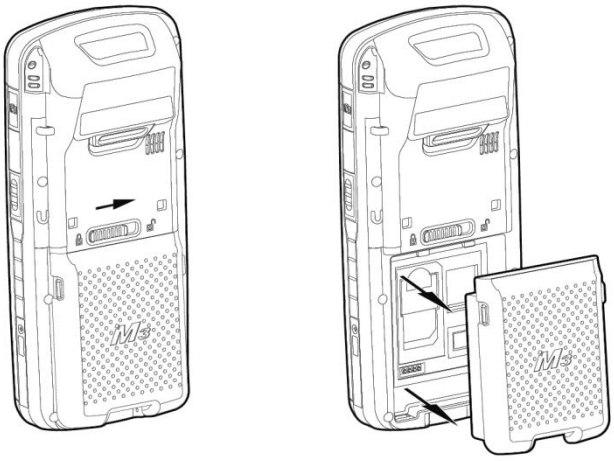


***M3 BLACK** uses Li-Ion 3.7V, 3,400mAh smart battery (standard) or 5,100mAh smart battery (extended)*

- *Using unauthorized battery may cause explosion or serious damage of the device.*
- *Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.*
- *Check the battery is placed in the correct direction.*

Removing battery

- Unlock the battery lock.
- Then, pull out the battery using side grips.



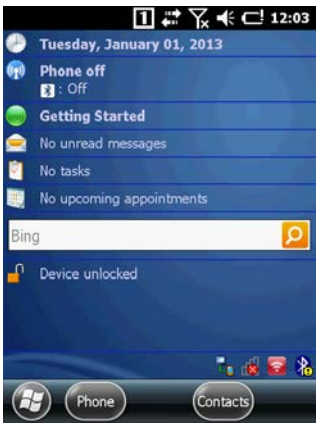
Program error may occur when removing battery while any program is running. Please make sure the running program is closed before

The back-up battery would work when the battery has removed so the device goes to sleep mode.

M3 BLACK can be used for maximum 11 hours with fully charged battery. It can be different depending on users' working environment.

1.2.2 How to charge

If the exclamation mark shows up next to the battery icon, please charge the battery otherwise the device will be turned off.

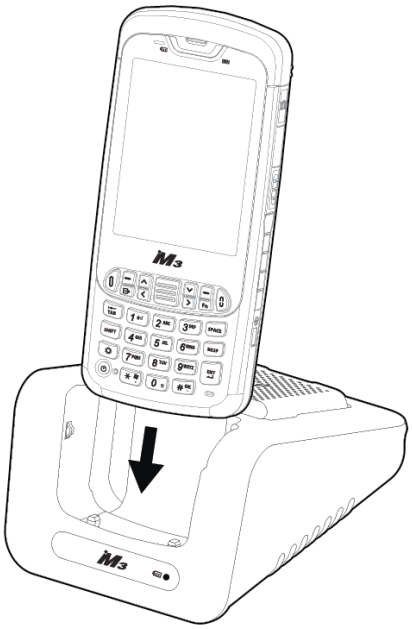


Charging the battery

- Plug in authentic AC adaptor plug to wall jack and DC jack to power connector of cradle.
- Insert PDA to device slot to start charging the PDA. Make sure that the device is connected to the cradle correctly.

AC adaptor is rated at 100~240V, 5A. Do not use the adapter outside the rated voltage.

Please use authentic cradle that M3 Mobile provides only, there might be a malfunction and/or failure of device.



<Charging with cradle>

If PDA is in right position, charging LED will indicate red and it will start charging the battery. It will change to green when the battery is fully charged.

If the charging LED is not turned on, please re-insert the device to the cradle.

LED Color	Description
Red	The battery is charging.
Green	The battery is fully charged.

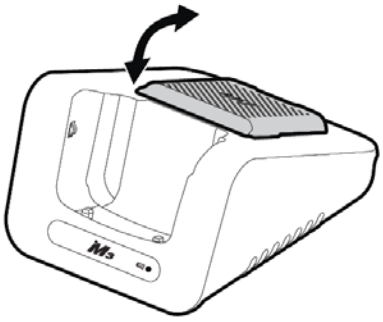
Do not exposure the battery to excessive temperature.
Acceptable user temperature range is -20°C (-4°F)~60°C (140°F)

It will take approximately 4 hours to fully charge from deplete state using the supplied charging cradle.

Charging spare battery

Position the spare battery to battery pack of the cradle as indicated in the following figure.

Charging LED on the cradle indicates the charging status.

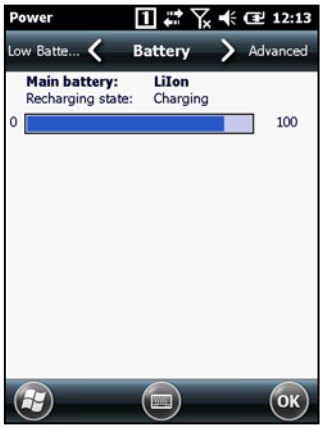


Remove the spare battery from the charging slot when charging is done.

Battery attached to the PDA will be charged first than the spare battery on the cradle, when two batteries are being charged at the same time.

- *M3 Mobile recommends replacing the battery if the battery is being used for 2 years.*
- *Battery capacity decrease when charging and discharging is repeated.*
- *Snap-on does not support charging of spare battery.*

Battery information can be checked in **Start→Settings→System→Power.**



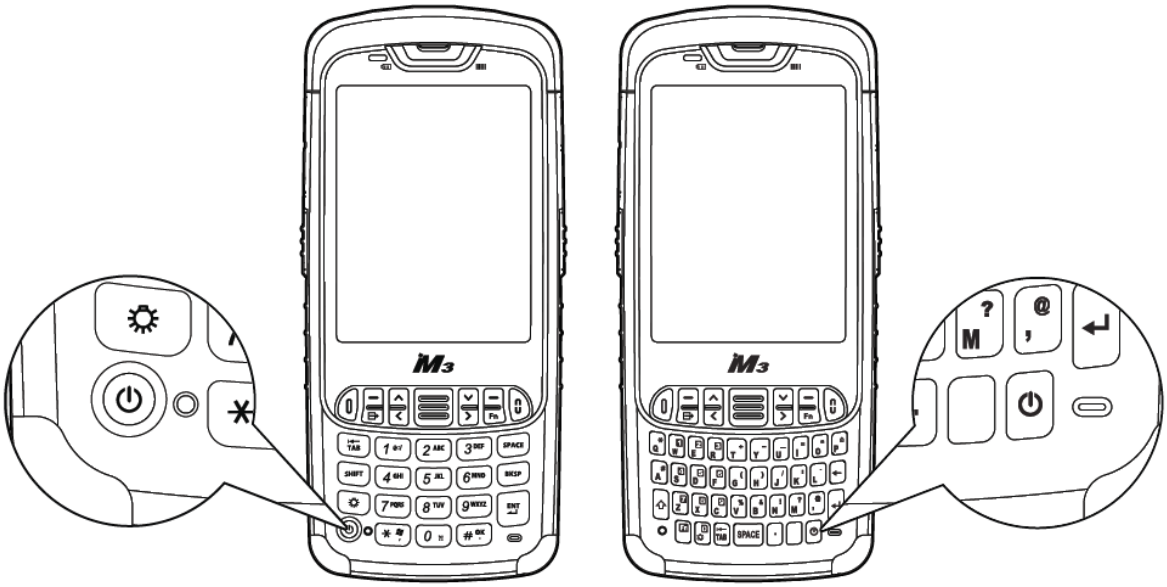
Smart battery used in M3 BLACK enables user to check the charging status while charging.

1.3 Power on & off

1.3.1 Power on

To turn on the device, attach fully charged main battery and press the power button briefly.

Empty or low level of the back-up battery may cause starting problem. If this happens press and hold the reset button for 5 seconds.



1.3.2 Power off

Press and hold the power button for more than 5 seconds to turn off the device.

1.3.3 Sleep mode

Device will automatically enter '**Sleep mode**' to save battery if there is no constant usage.

By default, backlight is turned off after 30 seconds of null state and will enter sleep mode if the device is not used for 1 minute on battery power.

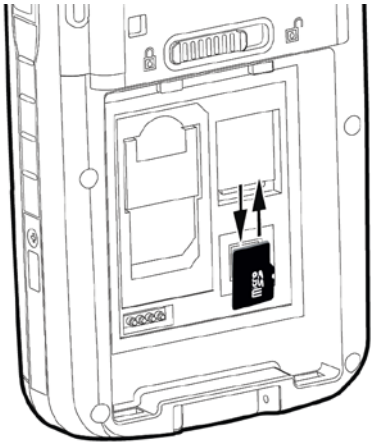
The time can be set from **Start→Settings→System→Backlight** for backlight off time and **Start→Settings→Power** for sleep mode.

In sleep mode, all modules except phone module are powered off which causes Wi-Fi to disconnect from the current AP. However, on resume, Wi-Fi is automatically re-connected to the AP normally within 10 seconds.

1.4 Memory card

1.4.1 Inserting memory card

M3 BLACK uses **MicroSD** external memory card. The external memory slot will appear if battery is removed as indicated in the following image:



- To insert MicroSD, first slide up the MicroSD cover to release the SD slot if locked.
- Pull up the SD cover to insert the MicroSD.
- After placing the MicroSD, pull down the cover and slide down the cover to secure the MicroSD card.

- *M3 BLACK with Windows Embedded Handheld 6.5 operating system supports up to 32GB of external memory.*

1.4.2 Data check

Stored data can be checked in **Start→File Explorer→Storage Card**.

For OS update using MicroSD, please refer to section 4.2.1 OS update via SD card.

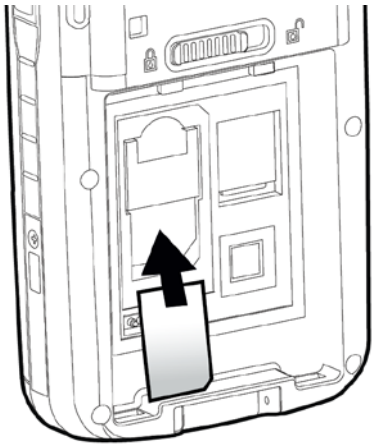
1.5 SIM card

1.5.1 Inserting SIM card

If the device is optioned with 3G network, SIM card slot is located under the battery socket.

The SIM must be authorized by the local network provider for voice or data communication over the wireless network.

To insert the SIM card, remove the battery and slide in the SIM card to the proper position.

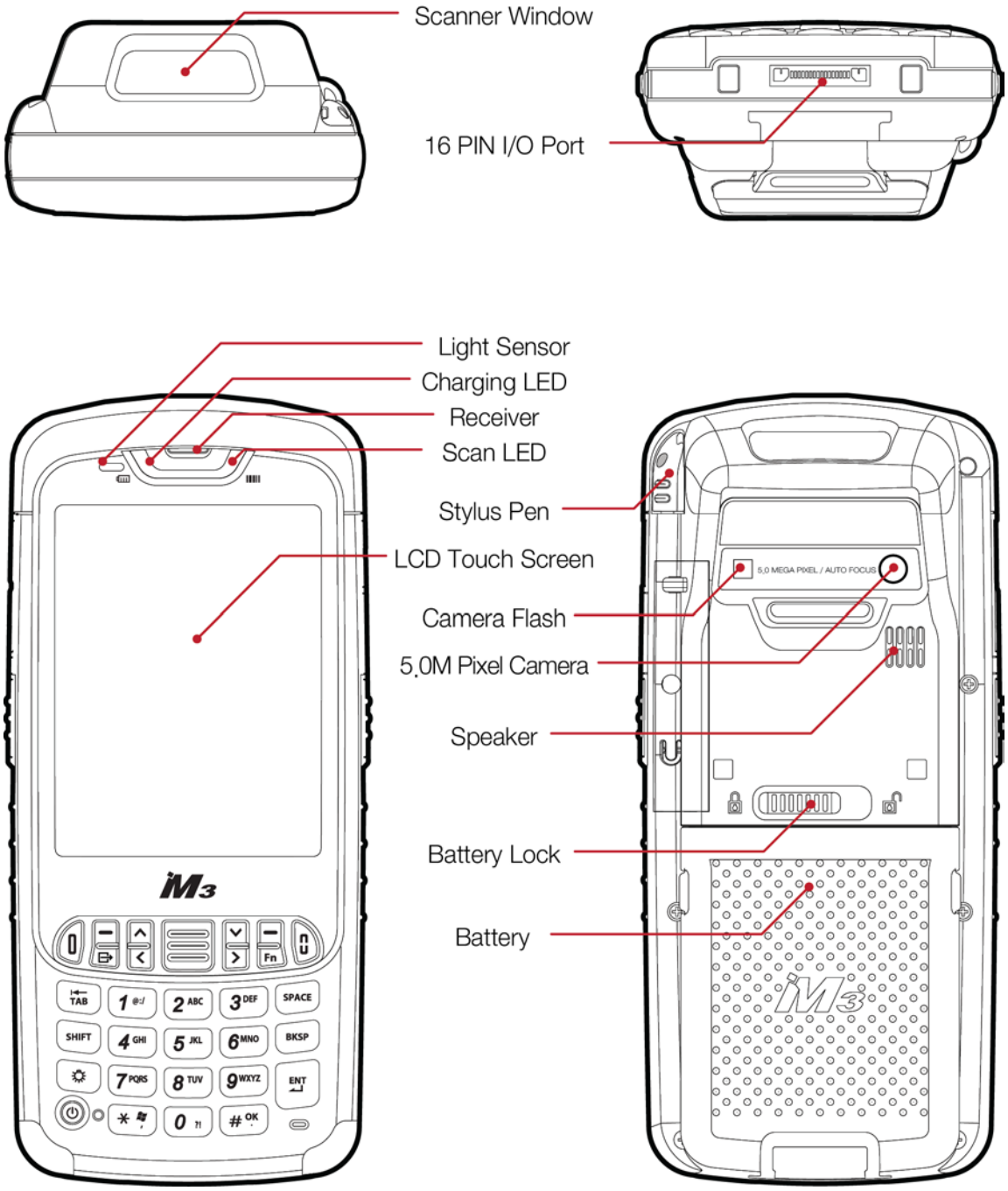


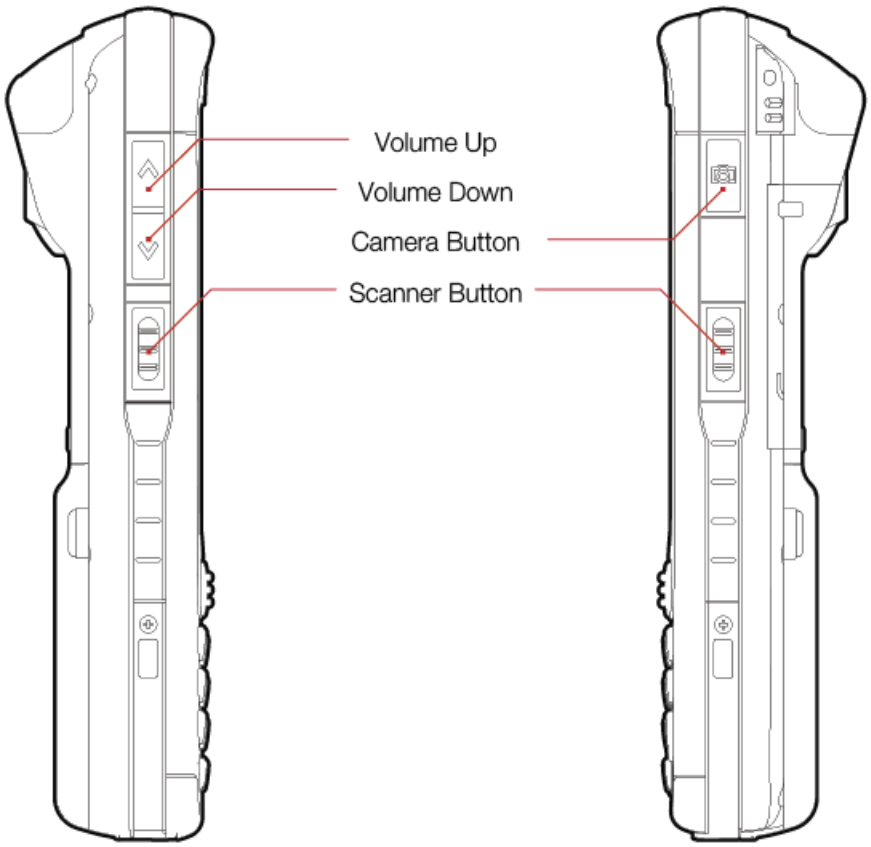
Please refer to section 3.4 Phone for more information on how to use the phone.

2. Basic usage

2.1 Features

Device layout





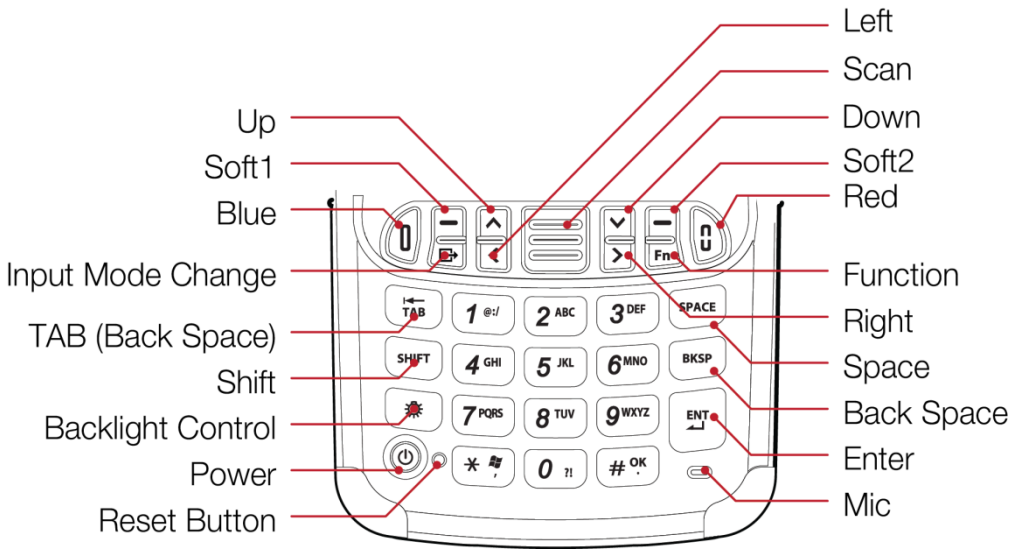
2.2 Keypad

2.2.1 Buttons

M3 BLACK has two different keypad options: **Alpha-Numeric** and **QWERTY**.

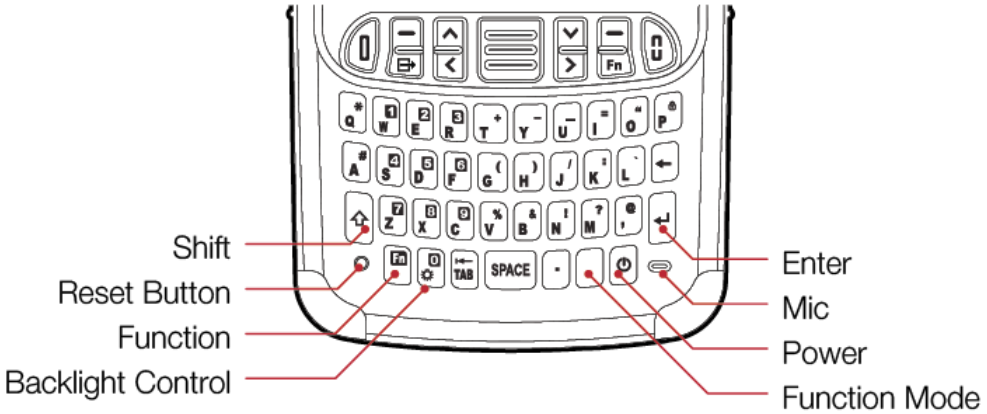
Alpha-Numeric keypad layout

Button	Description
SCAN	Used to scan while scanner program is running.
Soft1 / Soft2	Use specific command or menu.
Blue / Red	Used to make / end a call.
Power	Long press: Turns on/off the device. Short press: Enters Sleep/Wake up
Input mode change	Changes the input mode of the keypad. 1 (number) → a (lowercase letter) → A (uppercase letter)
Function	Activate specific function.



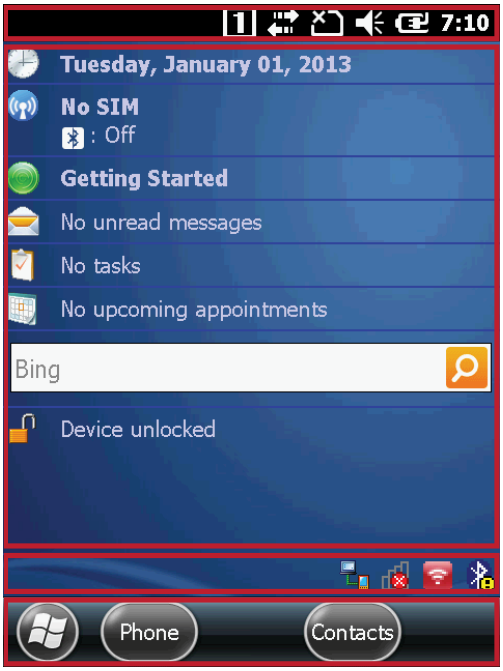
QWERTY keypad layout

Button	Description
Backlight toggle	Toggles the LCD backlight. Short press: Reduces the backlight level to 5% and/or turns on the backlight Long press: Turns off the backlight completely
Function Mode	Enables ORANGE mode. Orange ring: ORANGE mode is effective only once. Orange circle: ORANGE mode is effective until turned off.



2.3 Screen

When you turn on the device, you will see a screen as the following image. The screen is divided into 4 sections.



➔ Status bar

➔ Today screen

➔ Task bar

➔ Menu bar

2.3.1 Status bar

Status bar indicates the status of the device and 'Start' menu.

Icon	Name	Description
	Start menu	Expands the Start menu.
1 / a / A	Input mode	Number → Lowercase letter → Uppercase letter
/	Battery status	Charging or left power amount
F	Function mode	Status of function mode. Only in Alpha-Numeric version.
/	Connectivity	Display data connectivity (Sync)
/	Phone status	Displays signal strength
/ /	Volume status	Indicates volume or vibration mode

2.3.2 Today screen

There are program icons which can be added and/or deleted in home screen.

Icon	Name	Description
	Date / Time	Show the current date and time
	Wireless Information	Show the control panel for Bluetooth and phone function.
	Quick Guide	Show user manual that Microsoft supplies with OS.
	Owner information	Show and set owner's information.
	Messaging	Show the text messages, e-mail through outlook.
	Task Information	Show the tasks assigned.
	Calendar	Show Calendar
	Live search	Quick search bar
	Lock Screen	Lock screen.

2.3.3 Task bar

Task bar is controlled by third-party applications.

Icon	Name	Description
	WLAN on / off	Used to turn on / off WLAN
	WLAN status	Indicates WLAN status
	Bluetooth	Indicated Bluetooth status.

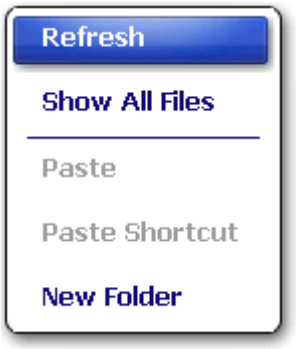
2.4 Data input

2.4.1 Stylus pen

Select and execute Click on the target icon with stylus pen.

Selecting multiple items Drag over the items with stylus pen.

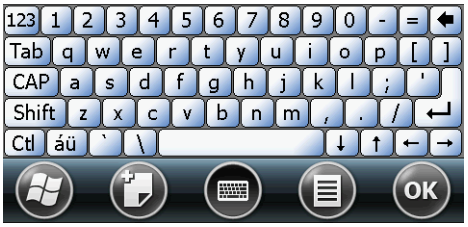
Menu popup Long press on the LCD



2.4.2 Keyboard

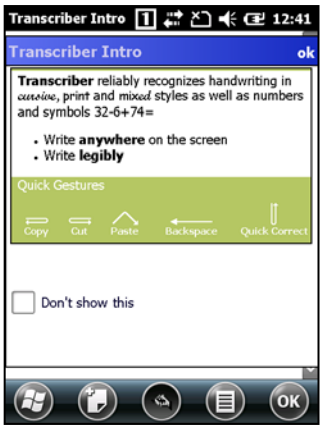
Physical keys Press the keypads on the device.

Soft input panel (SIP) Click on keyboard icon at the menu bar ( ).



Transcriber Hand writing recognition.

To enable transcriber, click and hold SIP icons. When an SIP menu pops up select Transcriber. '**Transcriber Intro**' window will be show up and click '**Don't show this**', if this information is no longer needed.



Input data with stylus pen, checked data will be recognized within 2 seconds.

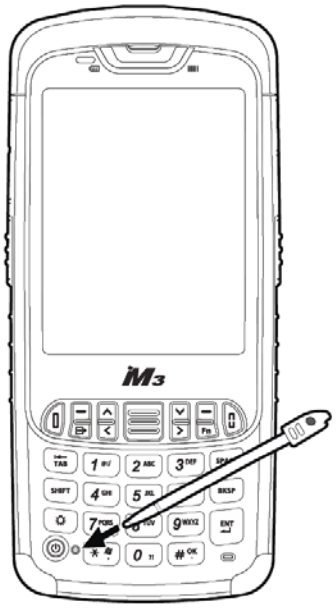
To turn off transcriber, simply select back to Keyboard from SIP menu.

2.5 Reset

2.5.1 Soft reset

When an unexpected error occurs while using the device, SOFT RESET allows your device to restart, similar to rebooting a computer. It will adjust memory allocation - all records and entries are retained after soft reset but unsaved data or files will be lost.

- Press the RESET BUTTON briefly.



2.5.2 Clean boot

When an unexpected error cannot be solved with SOFT RESET, perform CLEAN BOOT to restart the system. It will erase all data stored in the device except data stored in Flash Disk and return to its default settings.

Follow below steps to CLEAN BOOT. (> + ⏻)

- Turn off the device by pressing the power button more than 10 seconds.
- Press and hold Right direction button then press the power button.
- '**Clean Boot**' will be displayed on screen and press '**3**' to precede clean boot.
- Device will be initialized after clean boot that is, clean boot deletes everything except data stored in Flash Disk.

2.6 Sync with PC

Sync is simplified form of Synchronization, which enables files transfer or back-up data between PC and the device.

To synchronize the device with PC, one of the following sync programs must be installed on the PC. Please download appropriate program depending on the operating system of the PC.

Sync program download

Windows Mobile Device Center (Windows Vista or later): Download

ActiveSync (Windows XP): Download

2.6.1 How to sync

To sync, please follow the steps described below.

1. Download and install WMDC (or ActiveSync) on PC.
2. Connect client port of the cradle and PC using supplied USB cable.
3. Supply AC power to the cradle.
4. Turn on the device and place it on the cradle.

After step 4, your PC will automatically detect M3 BLACK and install Pocket_PC driver. Once the driver installation is done successfully, you should be able to transfer files or back up files on the device.

When you see a window similar to this, it means your device is connected to the PC correctly.

If Cradle and PC is connected with USB cable before installing ActiveSync, PC may not recognize Equipment

For features of WMDC or ActiveSync, please visit Microsoft homepage for more details.

If ActiveSync does not work please check followings.

- *Check USB cable is connected to cradle and PC properly.*
- *Check PDA and its LCD are turned on*
- *Check if [**Allow USB connection with this desktop computer**] is checked from **ActiveSync program menu→File→Connecting Option***

After checking all those above, try ActiveSync again or try Soft/Hard reset and ActiveSync.

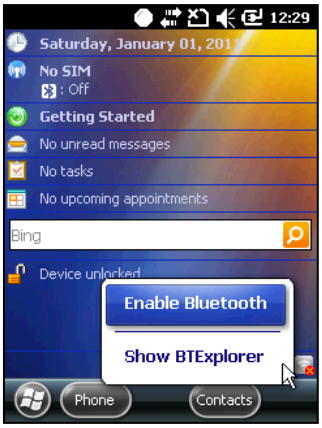
3. Application usage

3.1 Bluetooth

3.1.1 Bluetooth configuration

Turning on

Click on Bluetooth icon on task bar ( ) and choose '**Enable Bluetooth**' to turn on the Bluetooth module. Once the Bluetooth is on, the task bar icon will change to to indicate it is enabled.



To turn it off, simply disable the Bluetooth after click on icon from task bar.

M3 BLACK can use two different Bluetooth stacks:

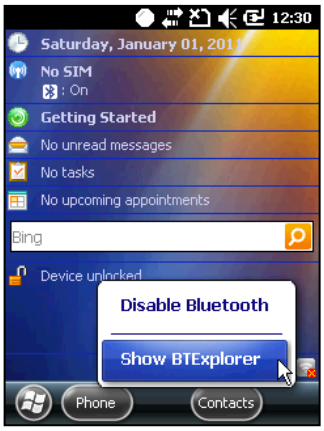
1. *StoneStreetOne (default)*
2. *Microsoft*

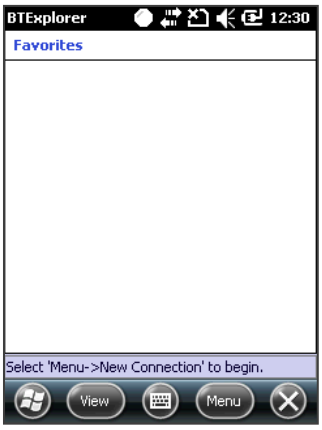
Bluetooth stack can be changed from
Start→Settings→System→BT Select
The device must go through power cycle after stack change.

3.1.2 Getting connected

Set Bluetooth Connection

Bluetooth connections can be configured using BTExplorer. To launch BTExplorer, click on Bluetooth icon on task bar ( ) and choose '**Show BTExplorer**'.





To make a new Bluetooth connection, follow steps below.

1. Click **Menu → New Connection** to search for connectable devices.

2. Choose the service willing to be connected and click '**Next**' to go to next step.

3. Choose on device willing to be connected, and click '**Next**' to proceed.

4. When '**PIN Code Request**' pops up, enter pin code which is identical with paired device, and follow the dialog to finish Bluetooth pairing.

3.2 Camera

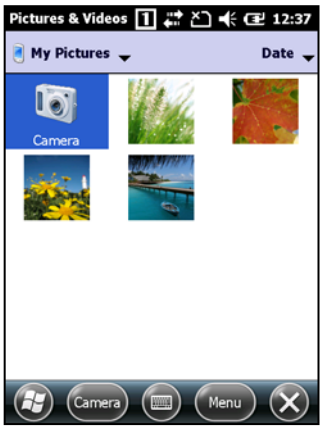
3.2.1 Camera basics

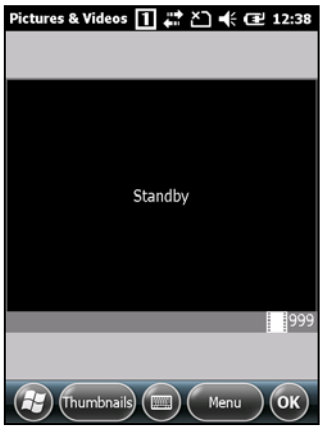
M3 Mobile provides its own camera application for 5.0 MP AF camera with enhanced features.

Camera is an optional module

How to launch

Camera can be launched through Pictures & Videos.





While the camera application is running, press 'Camera' button to capture the image. You should be able to check the result straight after the capture. Captured images can be check on Pictures & Videos.

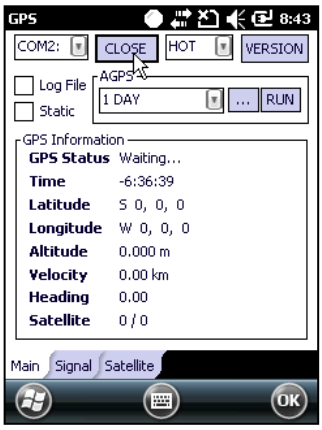
It may cause significant damage to your eyes if you directly look the flash attached at camera module.

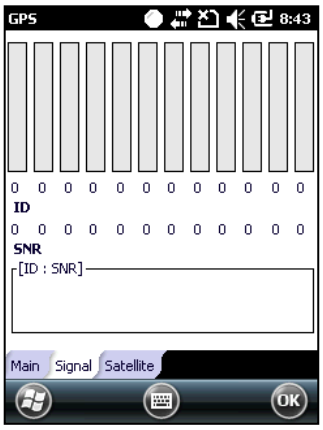
3.3 GPS

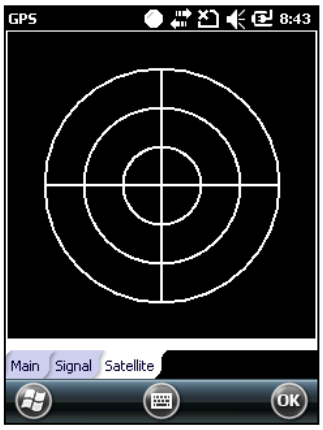
M3 BLACK provides Global Positioning System (GPS) and its test application.

3.3.1 GPS basics

The GPS application is located at \Flash Disk\GPS folder. The application provides general positioning information, signal strength and satellite information as well as the GPS start options.







Hot Start: Start mode of the GPS receiver when current position, clock offset, approximate GPS time, and current ephemeris data are all available.

Warm Start: Start mode of the GPS receiver when current position, clock offset, and approximate GPS time are input by the user. Ephemeris data is not available.

Cold Start: A condition in which the GPS receiver can arrive at a navigation solution without initial position, time, and current Ephemeris.

1. *GPS is an optional module.*
2. *Assisted GPS (AGPS) is only available with UBLOX GPS module. Please click on version to check your GPS module.*

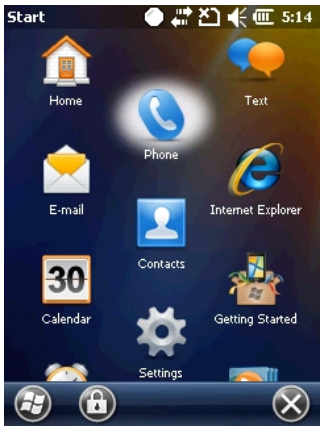
For detailed description of GPS application, please refer to Application Manual. Application Manual Download

3.4 Phone

M3 BLACK provides 3G (HSDPA) network features.

3.4.1 Phone basics

You can either go to **Start→Phone** or simply press '**Send**' button on home screen to enter Phone menu.



- Press ( ) button to hide number pad.

- Press ( ) button to enter menu.

- Press ( ) button to exit phone menu and return to today screen.

1. *Phone is an optional module.*
2. *Make sure phone is on before you make a call or data transfer over the network*

For GPRS setting, please refer to M3 FAQ document 'GPRS Settings' section.
FAQ Download

3.5 Scanner

M3 BLACK provides 1D or 2D scanner as an optional module. Please contact your local distributor for scanner options.

3.5.1 Scanner basics

M3 Mobile provides two types of scanner program:

1. ScanEmul Keyboard wedge application which sends barcode data.
2. ScanTest Used as scanner demonstration or quick tests.

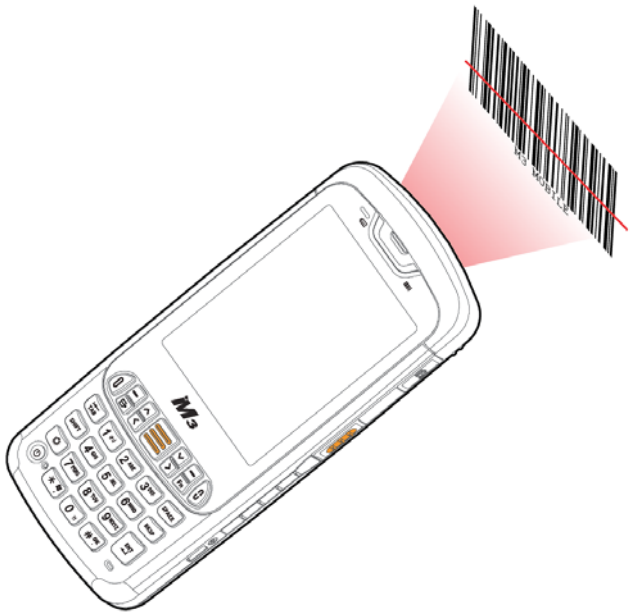
When ScanEmul is running scanner icon ( ) will appear on task bar.

1. *While ScanEmul is running, ScanTest cannot be used and vice versa.*
2. *Imager and Camera cannot run at the same time.*

For detailed description of scanner application, please refer to Application Manual.
Application Manual Download

3.5.2 Scanner use

Press scanner button toward to barcode you want to read.



Make sure the laser beam covers whole barcode to read data properly.

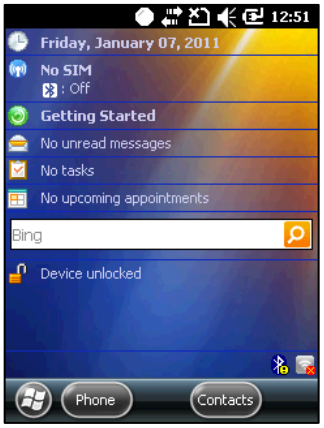
1. *Do not stare into beam.*
2. *Use of control of adjustment or performance of procedures other than those specified herein may result in hazardous radiation exposure.*
3. *LASER LIGHT - Do not stare into beam, CLASS 2 LASER PRODUCT 1.0mW, MAX OUTPUT:650nm*

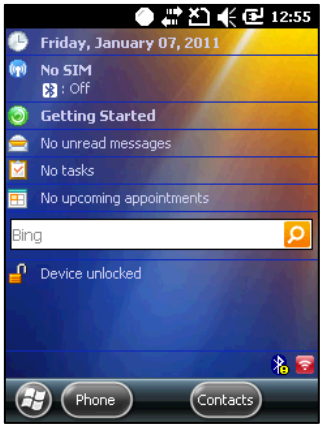
3.6 Wireless LAN

3.6.1 WLAN configuration

How to connect

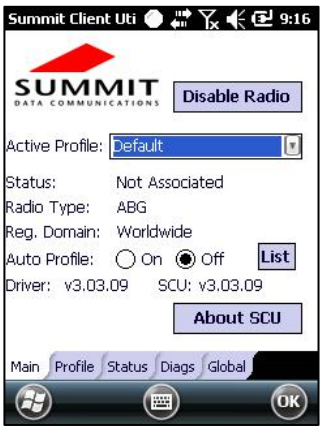
WLAN icon (/) on task bar indicates with WLAN is on or off respectively. If WLAN is off, click on the icon and Select '**WLAN Insert**' to turn on WLAN module. Then, WLAN status icon ( ) will appear on the task bar. Click on the icon to launch Summit Client Utility (SCU).

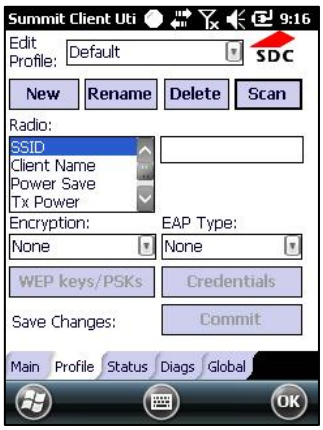


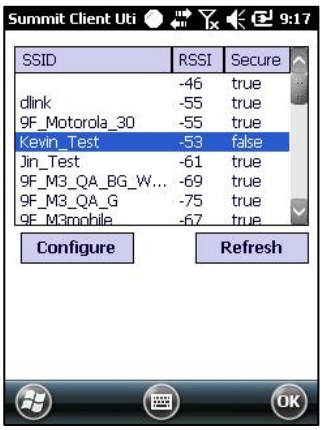


To connect to an AP, follow steps below.

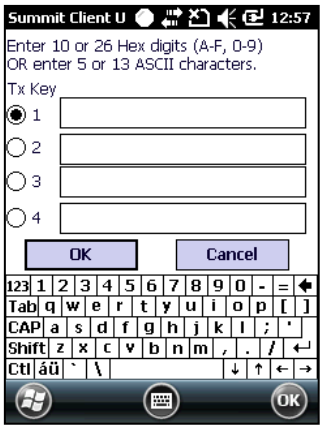
i. Choose '**Scan**' from '**Profile**' tab of SCU.



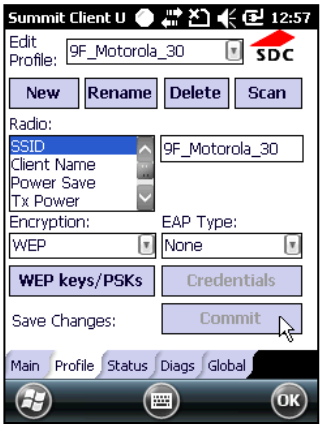


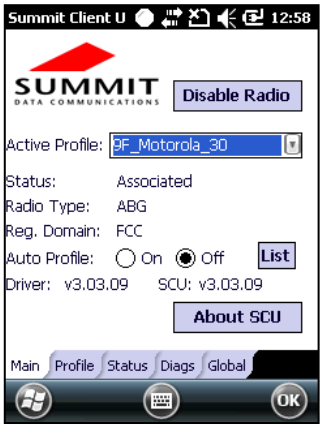


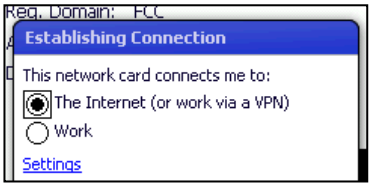
ii. From the AP list, click on the target SSID and Configure to access. Enter secure codes if applicable.



iii. Once a profile is created, click '**Commit**' to save the profile and move to the main tab to change the active profile.







iv. Check the connection status to ensure it is connected properly.

Entering sleep mode while the WLAN is connected will cause connection drop. However, upon wake up, it will automatically re-connect to the AP within 10 seconds.

4. Advanced usage

4.1 Software development kit (SDK)

M3 Mobile provides SDK to software developers to help them with their development.

Supported development tools

- Visual Studio 2005 (8.0) (.NET Framework 2.0) or higher
- Visual C++, Visual C#
- Visual Basic .NET (scanner only)

Development System Requirements

- Pentium – compatible 500MHz processor or better
- Microsoft Windows 98 / ME / 2000 / 2003 / XP
- ActiveSync

Development Platform Requirements

- Windows Mobile Platform SDK must be installed on your computer to be able to develop software using this SDK.

4.1.1 SDK Package

M3 Mobile provides SDK as a package for each product. Please download appropriate SDK package from online support page (http://itc.m3mobile.net)

In the package the following are included:

i. SDK for each module
: Bluetooth, Camera, GPS, Scanner (1D/2D), WLAN, SYSTEM

ii. Sample test program for each module.

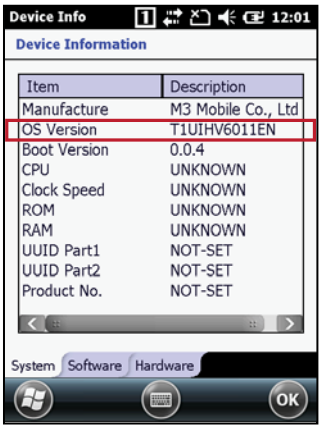
iii. SDK Manual
: Introduction, Tutorial, Sample sources, References

4.1.2 OS Update

To improve the performance and quality of the product, M3 Mobile can release later version

of OS than the one that are currently installed on your device.

To check OS version of your device, please go to
Start → Settings → System → Device Info and check OS Version.



Other device information is either unknown or not-set because this screen image is a sample image to help your understanding.

The latest officially version of OS can be checked on M3 Mobile support webpage.

M3 BLACK provides 2 ways of updating the OS:

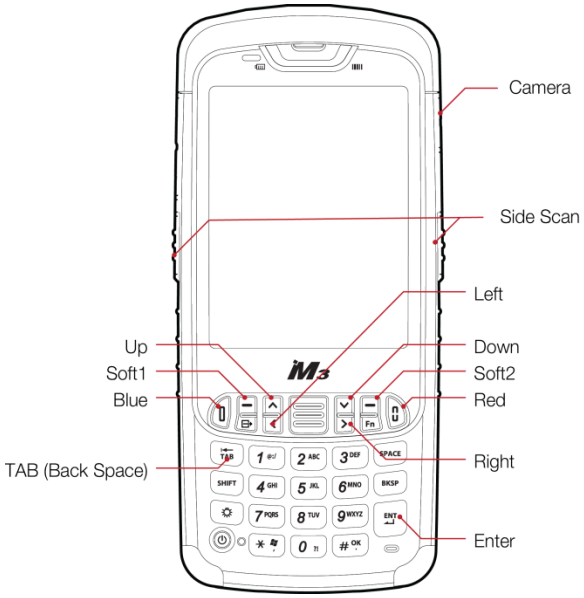
i. Using MicroSD

ii. Using cradle with USB connection

For detailed description of OS update method, please refer to M3 FAQ document 'OS' section. FAQ Download

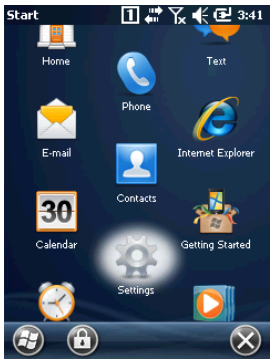
4.1.3 Key customization

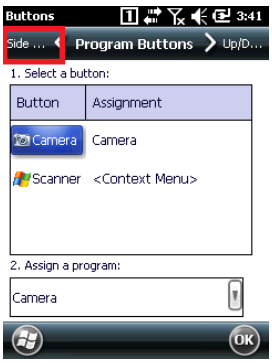
M3 BLACK provides freedom to user with key customization.

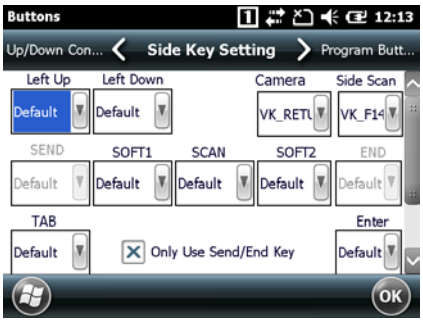


Key customization can be done in 3 ways:

i. GUI method
[Start] → [Settings] → [Personal] → [Buttons] → [Side Key Setting]







ii. M3.ini, Visual INI

iii. Changing registry

In fact, with alpha-numeric version, all physical buttons except system buttons such as the power button, are customizable with registry change method.

Please refer to M3 FAQ document 'Keypad' section for more details.
FAQ Download

5. Etc

5.1 Specification

Physical Characteristics	
Dimension (W x H x D) mm/inch	75.3 x 165.8 x 26 mm
	2.96 x 6.52 x 1.02 inch
Weight (including battery)	336 g / 11.8 oz.
Display	3.5" VGA TFT LCD, 480 x 640 pixels
Battery	Standard Li-Polymer, 3.7 V, 3,400 mA Extended Li-Polymer, 3.7 V, 5,100 mA Smart battery

Performance Characteristics	
Multi-processor	**CPU** Cortex-A8 1GHz
	Radio ARM11 series
OS	Windows Embedded Handheld 6.5 Windows CE 6.0
Memory	**RAM** 512 MB up to 1GB
	ROM 8 GB
	Card Slot Micro SD, up to 32 GB
Interface	USB 2.0 High Speed Host & Client

User Environment	
Temperature	**Operating** -20~60 ℃ / -4~140 ℉
	Storing -30~80 ℃ / -22~176 ℉
Humidity	95% non-condensing
Tumble test	1,000 1.6ft./0.5m tumbles (2,000 drops)
Drop test	2.0m / 6.6ft.
IP rating	IP67

Wireless radio options	
WWAN	**2G Network** GSM / GPRS / EDGE: Quad band (850 / 900 / 1800 / 1900 MHz)
	3.8G Network UMTS / HSPA+: Five band (800/850/AWS/1900/2100 MHz)
WLAN	IEEE 802.11 a/b/g, b/g/n (Optional)
Security	WEP, WPA, WPA2, TKIP, AES, EAP-FAST, EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP- TLS, PEAP-MSCHAPv2, LEAP, CCXv4
Bluetooth	Class II, v2.0 with EDR
GPS	AGPS, GLONASS (Optional)

General options	
Scanner	1D / 2D
Camera	5.0 MP AF
Keypad	Alpha-Numeric (34 key) QWERTY (53 key)

5.2 Services

If you experience any trouble while using our product, you can visit **M3 Service center** or send enquires to our **Information & Technology Center web page** (http://itc.m3mobile.net), we will do our best to solve your trouble as soon as we can.

M3 FAQ document can help you with troubleshooting.

For any enquires about business program, please contact program provider for faster service.

5.2.1 Contact details

Headquarter

M3 Bldg., 735-45, Yeoksam-Dong, Gangnam-Gu, Seoul, 135-080, Korea
Tel: +82 2 574 0037 Fax: +82 2 556 0156

www.m3mobile.net, sales@m3mobile.co.kr

Service Center

Chun-ui Techno Park 201-610, 202, Chunui-Dong, Wonmi-Gu, Bucheon, Gyeonggi-Do, 420-850, Korea
Tel: +82 32 623 0037

Information & Technology Web page (Online Support)

http://itc.m3mobile.net, it@m3mobile.co.kr

M3 MOBILE